



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/893,023	06/27/2001	Frank O'Mahony	884.405US1	3406
7590 12/03/2004			EXAMINER	
Schwegman, Lundberg, Woessner & Kluth, P.A. P.O. Box 2938 Minneapolis, MN 55402			SEFER, AHMED N	
			ART UNIT	PAPER NUMBER
			2826	

DATE MAILED: 12/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/893,023

Applicant(s)

O'MAHONY ET AL.

Examiner

A. Sefer

Art Unit

2826

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13-18 and 26-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-18, 26, 29, 30 and 34-47 is/are allowed.
- 6) ☒ Claim(s) 27, 28 and 31-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed 9/13/2004 has been entered; no new claims have been introduced.

### ***Response to Arguments***

2. Applicant's arguments filed 9/13/2004 have been fully considered but they are not persuasive.
3. Applicants argue that the combined references, Lee et al. ("Lee") USPN 6,144,224 and Chi (IEEE transactions on computers, VOL. 43, NO. 5, May 1994)/Chi USPN 5,387,885 ("Chi '885 "), do not teach or fairly suggest all the elements either explicitly or inherently. Specifically, Applicants argue that Lee's two lines emanating from a clock in opposite directions for a VLSI circuit does not disclose two parallel differential lines configured to carry a differential clock signal on a microelectronic die
4. The examiner notes that Lee also discloses (see abstract) an alternative layout having first and second differential signal lines (wires), the first and second differential signal lines being parallel to one another.
5. As for the Chi's reference, the examiner notes it was only relied upon to show the benefit of using salphasic clocking techniques. The examiner provided a motivational statement for combining. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 27, 28 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. ("Lee") USPN 6,144,224 in view of Chi (IEEE transactions on computers, VOL. 43, NO. 5, May 1994)/Chi USPN 5,387,885 (" '885 ").

Lee discloses (see figs. 2-5 and abstract) a microelectronic die comprising a clock signal source 49 to provide a clock signal; and a clock signal distribution network to distribute the clock signal to multiple clocked elements within the microelectronic die, the clock signal distribution network including a number of on-die interconnect sections having first 44a and second 44b differential signal lines on a first metal A/B layer of the microelectronic die, the first and second differential signal lines being substantially parallel to one another; and a number of conductive links 41a/41b, wherein a first conductive link of the number of conductive links couples the first differential signal line of a first one of the interconnect sections to the first differential signal line of the second one of the interconnect sections and a second conductive link of the number of conductive links couples the second differential signal line of the first one of the interconnect sections to the second differential signal line of the second one of the interconnect sections, but does not specifically disclose using salphasic clocking techniques.

Chi discloses (see abstract) the advantages of salphasic clocking techniques.

Art Unit: 2826

Since Lee, Chi and Chi '885 are all from the same field of endeavor, clock distribution network, the teachings disclosed by Chi and Chi '885 would have been recognized in the pertinent art of Lee. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate Chi's teachings with Lee's device, since that would substantially reduce clock skews as taught by Chi. It would have been obvious to incorporate the teachings of Chi '885 with Lee's device, since that would minimize phase shifts.

As for claim 28, Lee discloses a microelectronic die including a microprocessor circuitry 45.

As for claims 31-33, Lee disclose a number of traces 41a/41b including signal lines (as in claim 33) on metal layer A/B being capacitively coupled to and non parallel or substantially orthogonal (as in claim 32) with said first and second differential signal lines.

***Allowable Subject Matter***

8. Claims 13-18, 26, 29, 30 and 34-47 are allowed.

***Conclusion***

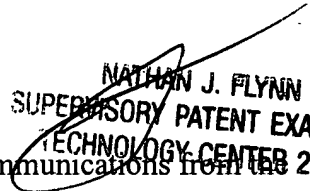
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Wissel USPN 6,239,387 discloses a sinusoidal clock distribution network.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

Art Unit: 2826

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

  
NATHAN J. FLYNN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS  
November 23, 2004